

ABSTRACT OF THE INVENTION

A machine tool provided with an electric motor which can maintain the fixed output power in a wide speed range. The electric motor has a stator having a primary winding, and a rotor having a field magnet and a shaft, said field magnet comprising a first field magnet having different polarity magnetic poles sequentially arranged in a rotating direction and a second field magnet having different polarity magnetic poles sequentially arranged in a rotating direction, and a mechanism for shifting one field magnet in axial and rotating directions with respect to the other field magnet, whereby a composite magnetic field of said first and said second field magnets is changed.